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For the

1976 "Request For Proposal" (RFP) Contest

*Accounting Cost Finding
Municipal Finance Accounting
Taxation*

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BY

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(A municipal cost benefit study research design.)
[with special reference to development and land
use changes].

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A MUNICIPAL COST BENEFIT STUDY RESEARCH DESIGN

Analysis of the source of municipal revenues and the supply of services can be of vital economic planning importance to a city. The Cost Benefit Study described in this report represents a research design for a systematic look at who pays for city services and who receives them. This particular research design proposes allocating the cities revenues according to source by a sample land use type. The design calls for the analysis of the full range of revenues, traced to their sources: residential, commercial and industrial. In a similar process, the provision of city services will be dissected. The cost benefit study will have a dual purpose: to develop a tool for analyzing the economic impact of proposed new development or land use changes, and to develop an analysis of the existing cost flows and revenue sources.

When the analysis of costs and revenues are completed, they will be correlated to the appropriate sample land used and converted into factors for a model. Various services such as police protection, for example, will be found to have a specific cost annually per acre for all land use types. However, annual per capita sales tax generation may have various values depending upon land use, i.e., single family duplex, and multi-family. The research design calls for the summation of all cost and revenue factors and application of the model to a series of residential, commercial, and industrial samples which will result in the formation of a series of cost-benefit factors. The cost-benefit ratio will indicate the level of revenue contribution divided by the level of service cost. The final results will be displayed as follows:

		CITY FACTOR
SAMPLE LAND USE	$\frac{\text{REVENUE}}{\text{COST}}$	= COST BENEFIT RATIO
I. <u>RESIDENTIAL</u>		
a. Single Family		0.00
b. Duplex		0.00
c. Multi-family		0.00
II. <u>COMMERCIAL</u>		
a. Downtown General		0.00
b. Major Department Stores		0.00
c. Food Establishments		0.00
d. Hotel/motel		0.00
e. Commercial Strips		0.00
III. <u>INDUSTRIAL</u>		
a. Manufacturing		0.00
b. Wholesale		0.00
c. Warehousing		0.00

The factors will be developed so that a ratio of 1.00 indicates that the revenues generated to the City are equal to the costs of services provided by the City. Presumably a ratio less than 1.00 could be defined as an economic liability while a ratio higher than 1.00 would be positive.

At the outset of the project it is expected that two assumptions will be verified:

Assumption #1

Residential areas will presumably have an equal ratio of revenues generated to the City, equal to costs of services provided by the City. It may be possible, however, that multi-family units will have higher ratio of revenues over costs.

Assumption #2

Commercial and industrial areas will presumably have a higher ratio of revenues generated to the City compared to city costs.

These assumptions are made based on the presumption that commercial and industrial areas bear a greater burden of the service charges and tax effort than do the residential areas, as is especially expected in the case of the single family residence.

METHODOLOGY

The development of the cost benefit model in this research design will require dealing with the following four methodology problems;

1. Assumptions concerning cost
2. Level of service
3. Accounting/identification of a base year
4. Social costs

Assumptions Concerning Costs

In order to successfully use the cost benefit model a broad range of cost and revenue data must be collected. Because of expected difficulties in converting data from existing city accounting systems and because some data may not be available at all, it is expected in some cases that assumptions and conclusions will need to be made where conclusive data is not available.

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Assumptions Concerning Costs (cont'd)

Although this may leave the model open to criticism it is expected that when better information becomes available, it can be plugged into the system. This method will additionally allow for the input of the best information on hand, which is presumed to be better than no information at all.

Level of Service

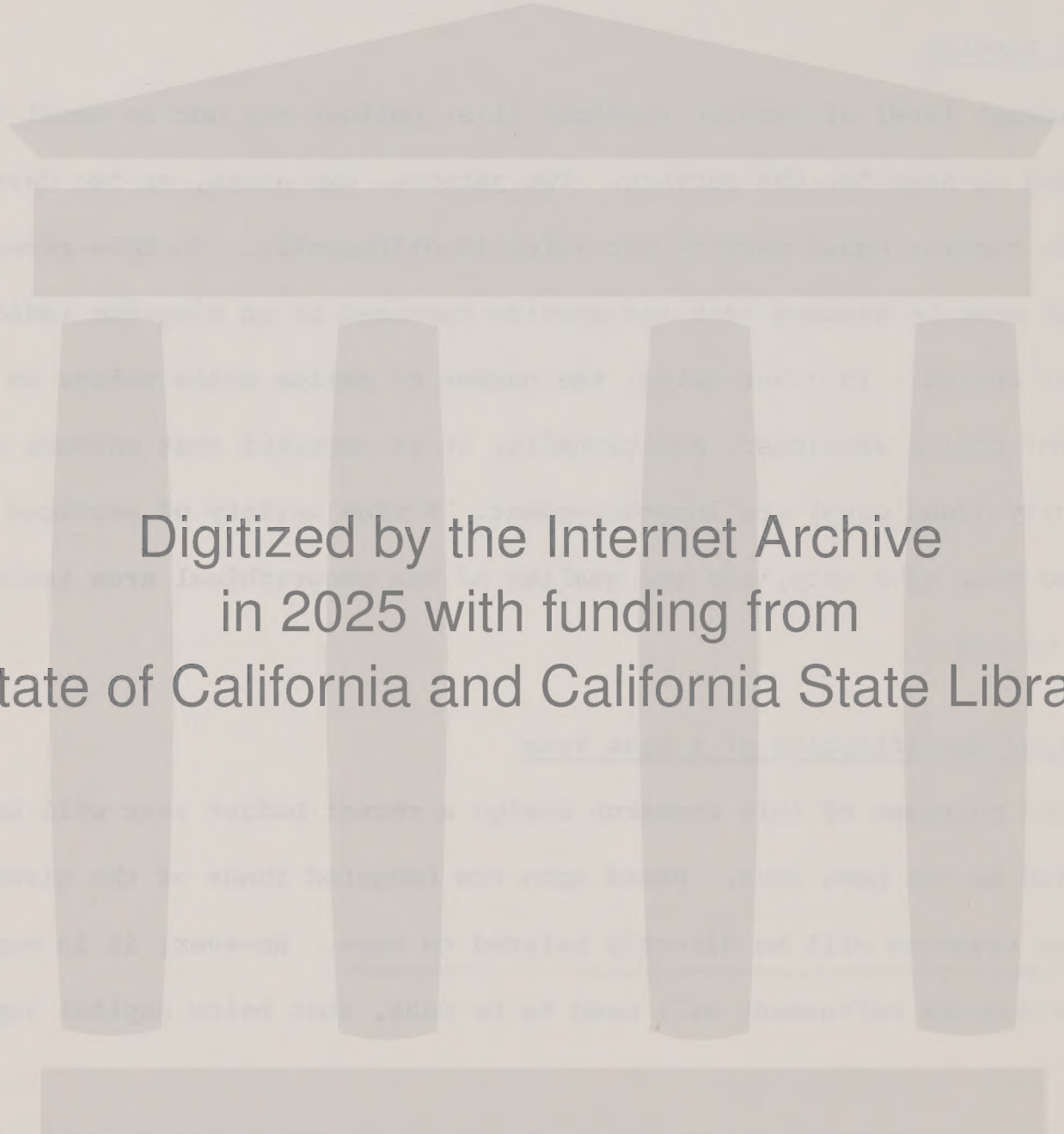
The actual level of service rendered (i.e. police) may not be equal to the demand or need for the service. Two persons, two areas, or two developments may receive equal service but value it differently. In this research design it must be assumed that the service rendered is an adequate indication of actual demand. In other words, the number of police calls relate to the demand for police services. Additionally, it is expected that various areas of the city (land uses) are interdependent. A wide variety of services are needed to make up a city, and the quality of one geographical area indirectly affects others.

Accounting/Identification of a Base Year

For the purposes of this research design a recent budget year will be identified as the base year. Based upon the budgeted funds of the given year, costs and revenues will be directly related to uses. However, it is expected that one complex refinement will need to be made, that being capital improvements.

Social Costs

This cost-benefit research project has been designed to measure only economic factors. It is realized that the model can analyze information in terms of dollar costs only and that it can make no attempt to quantify social costs.



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EVALUATION OF THE MODEL

The following is a step by step explanation of the model which is divided into three major parts:

PART A: Description of Land Use Sample

PART B: Municipal Revenue Elements

PART C: Municipal Cost Elements

A. Description of the Sample Land Uses

The development of the revenue and cost factors of the model will be a process of correlating the cost catagories or the sources of revenue with the sample characteristics of land use.

The sample characteristics needed for the residential land use sample are as follows: Acreage, number of single family, duplex and multi-family units, population by household type and assessed value.

The sample characteristics needed for the commercial land use sample are as follows: acreage, building square footage, number of firms, retail sales by firm and assessed value.

The sample characteristics needed for the industrial land use sample are as follows: acreage, building square footage, number of firms and assessed value.

B. Revenue Elements

Below are listed typical revenue elements which could be received by a city, and a brief description of how they would be calculated.

1. Property Tax

The property tax is a primary source of municipal revenue.

With the assessed value determined on a per acre basis it will be a simple calculation to determine property tax revenue. If the property tax were \$1.50 per \$100.00 of assessed value the revenue factor for existing land use would be $.015 \times (\text{Assessed Value})$.

The following is a copy of the information on the subject which is being

sent to you for your information.

Part A: Description of the subject

Part B: Summary of the subject's activities

Part C: Summary of the subject's contacts

1. Description of the subject's activities

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3. Summary of the subject's contacts

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2. Refuse Revenue

If the municipality is responsible for refuse collection, then the revenue collected can generally be calculated by using a scale for residential and commercial collection. In the case of multi-family dwellings, the total collection revenue can be pro-rated on a per unit basis.

3. Cigarette Tax

In California, the cigarette tax is collected by the State, and a portion is returned to the municipality. For the purpose of this study, the tax should be allocated as a per capita revenue

4. Gasoline Tax

The Gasoline Tax like the cigarette tax is collected by the State. The portion returned should be allocated on a per capita basis.

5. Sales Tax

Municipalities in California currently receive 1 percent of the total 6 percent sales tax collected by the State. The sales tax should be allocated only to the residential samples of land use on a per capita basis. However, it is expected that after minor analysis different sales tax generation values can be allocated depending upon residential land use, i.e. single family, duplex and multi-family.

6. Business License Tax

Usually municipal business license tax rates are assessed at a given rate per so many thousand dollars in sales. This revenue can be directly allocated to the types of commercial and industrial land use by research of tax records.

The purpose of this study is to investigate the relationship between the variables X and Y. The study is based on a sample of 100 subjects. The results of the study are presented in the following sections. The first section discusses the methodology used in the study. The second section presents the results of the study. The third section discusses the implications of the results. The fourth section concludes the study.

The study was conducted using a survey method. The survey was distributed to 100 subjects. The subjects were asked to complete the survey and return it to the researcher. The survey consisted of a series of questions designed to measure the variables X and Y. The results of the survey are presented in the following sections.

The results of the study show a positive correlation between the variables X and Y. The correlation coefficient is 0.75. This indicates that as X increases, Y also tends to increase. The results are statistically significant at the 0.05 level.

The results of the study are consistent with the hypothesis that there is a positive relationship between X and Y. The study provides evidence to support this hypothesis. The results have implications for the understanding of the relationship between X and Y. Further research is needed to explore the relationship in more detail. The study also has practical implications for the use of X and Y in various contexts.

In conclusion, the study has shown that there is a positive relationship between the variables X and Y. The results are statistically significant and have implications for the understanding of the relationship between X and Y. Further research is needed to explore the relationship in more detail. The study also has practical implications for the use of X and Y in various contexts.

7. Utilities Tax

If the municipality has a utilities tax, it can usually be defined as a percentage of the utility bill. The distribution of this revenue to the various land uses can be accomplished by developing a sophisticated estimate for the probable usage of telephone, electricity, and gas among the various sample land uses.

8. Municipal Revenue Total

The addition of revenue components, which apply, for each land use sample will equal the total revenue for that sample.

C. Service Cost Elements

Below are listed typical service cost elements which may be incurred by a municipality and a brief description of how they would be calculated.

1. Fire Protection

Most fire calls are recorded by Fire Departments according to the type of structure burned. After investigation and interview it could be determined what the usual methods of operation are, and costs could be assigned to each sample land use type.

2. Police Protection

Police protection costs are usually very difficult to allocate to a land use type. Usually police calls are correlated to geographical areas. For this reason the total police budget should be divided by the total number of acres in the City, and overall price per acre multiplied by the total acreage in each sample land use type.

3. Refuse Collection

By a process of interview and budget analysis a per unit cost will be developed for each of the residential land uses, and a per acre cost for the commercial and industrial land uses.

4. Street and Sewer Maintenance/Traffic Control

Cost for these services do not usually vary from area to area or use to use. However, a budget analysis may reveal differences from one use to another. If nothing specific can be developed, these costs can be distributed on a per unit and per acre basis.

5. Parks and Recreation

Parks and Recreation costs should be allocated on a per capita basis. Although residential uses are the primary beneficiary of these services, there is certainly benefit or spill over to certain commercial and industrial uses.

6. Library

Library costs should be considered just as the Parks and Recreation services immediately above.

7. Miscellaneous Cost and Overhead Factor

The budgets of most municipalities reflect situations where more revenues than costs can be traced to particular land uses. In order to keep costs and revenues in proportion, or normalized so that meaningful ratios can be developed, a miscellaneous cost overhead variable will need to be inserted on the cost side of the variable. To arrive at this variable the preceding year's revenues and costs which could be identified or linked to a land use can be established

It is a common mistake to think that the only way to get rid of the "old" is to get rid of the "new". The "old" is not a thing, but a process. The "new" is not a thing, but a process. The "old" is a process of decay, and the "new" is a process of growth.

The Process of Growth

There are two main ways in which growth can be achieved. The first is by the addition of new material, and the second is by the removal of old material. The first is the process of accretion, and the second is the process of abscission. Both are necessary for growth to take place.

The Process of Decay

There are two main ways in which decay can be achieved. The first is by the addition of new material, and the second is by the removal of old material. The first is the process of accretion, and the second is the process of abscission. Both are necessary for decay to take place.

The Process of Change

There are two main ways in which change can be achieved. The first is by the addition of new material, and the second is by the removal of old material. The first is the process of accretion, and the second is the process of abscission. Both are necessary for change to take place.

The Process of Development

There are two main ways in which development can be achieved. The first is by the addition of new material, and the second is by the removal of old material. The first is the process of accretion, and the second is the process of abscission. Both are necessary for development to take place.

7. Miscellaneous Cost and Overhead Factor (cont'd)

from the previous year's budget. The variable will then be the difference between these specified revenues and costs which will then be allocated to each land use sample on a per acre basis.

8. Municipal Service Cost Total

The addition of the service cost components which apply, for each land use sample will equal the total cost for that sample.

COMPLETION OF MODEL RUNS

In this phase of the study, the data should be collected and computed for each sample of land use. The output ratios can then be analyzed, displayed, related with assumptions and hypotheses and used for projections of proposed developments. As previously stated, the ratios use a base of 1.00 where allocated revenue equals allocated service costs (see page 2). For each individual land use sample, ratios of less than 1.00 will indicate that costs exceed revenue, a negative implication. Ratios of more than 1.00 will indicate a revenue surplus or positive implication.

When city administrators and planners are viewing the potential development of city land, the appropriate cost benefit ratios can be developed for the existing land and compared to the proposed land use. The cost benefit ratio which is the result of this research design will aid in the decision making process relative to potential land use.

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